

How to use Explicit Messaging Effectively

Step by Step Procedure

Dec. 2016

Name

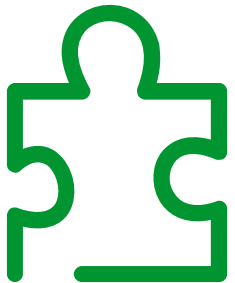
Srihari Palepu

How to Use this Guide?

Legends

Pay attention to the Icons

.Each have its own directives for you to follow.



Action

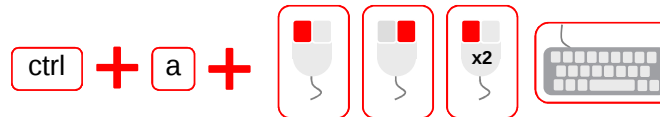
Whenever you see these wordings, means something you have to perform by yourself.

Step by Step

Whenever you see these wordings, the course is guiding you through a step by step sequence. This allows you to follow easily a sequence of actions in order to achieve a certain objective.



Normally found together with Step by Step slides, these arrows with numbers within shows the sequence in which you should follow.



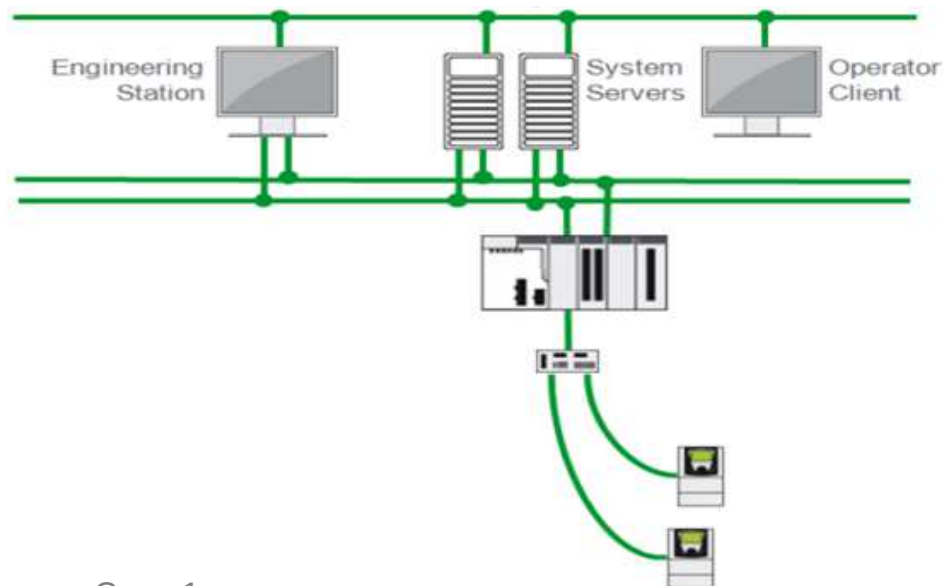
Icons like theses show which mouse buttons or key sequence or key entry you should execute.

Introduction

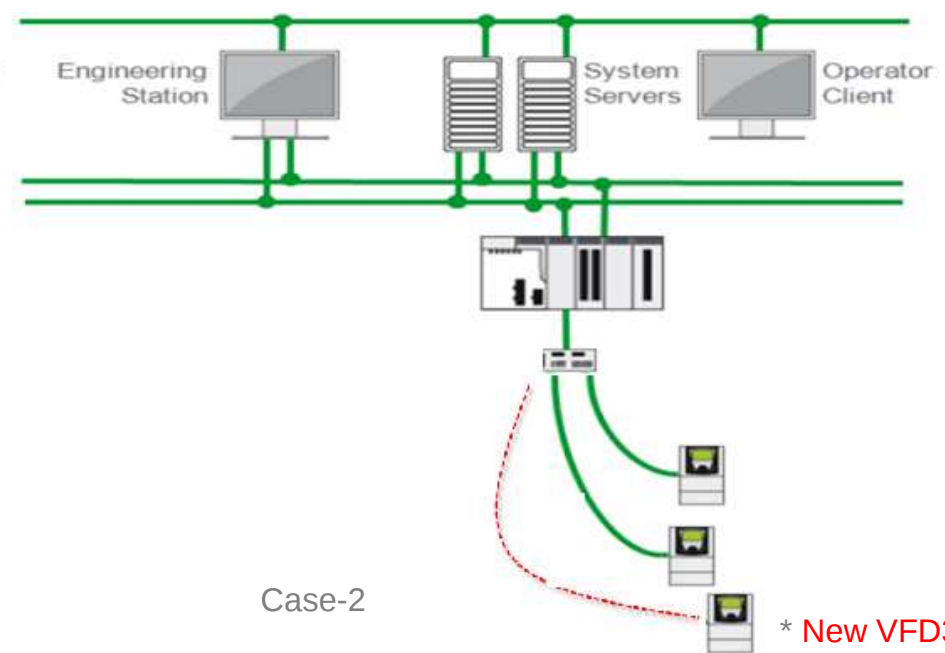
This Article helps PES users to Manage Explicit Messaging effectively using GPL objects.

Use case : Configure VFD1,VFD2 and attach them to a communication card, download the configuration to controller and keep process running. Once it is kept running user wants to add more devices(VFD3) to same communication port ,he can add new device to controller but it requires complete download / Build all. If user working on standalone system and can't afford a shutdown it is tough to manage.

Below Article explains step by step procedure to add more devices with out any download or interruption to process.



Case-1



Case-2

* New VFD3

Pre Requisites

1. PES working knowledge and Project creation
2. Working knowledge in Vijeo Citect, Unity

PES overview

Application Explorer (AE)

Used to instantiate objects from PES Library. Ex LVPC in this Example. AE is the place where we define our project requirements like name of the object and its properties like alarm, trends and other configuration parameters. Also user can manage edit links from AE. If an object is linked with some other objects, AE is the place where we do editing those links to make an object valid. Else we may face difficulties in project creation.

Project Explorer (PE)

Used to create control & supervision projects and its executable. Map communication, Map services to link control project with respective Controller. Hard ware mapping with DI , DO, AI, AO etc.

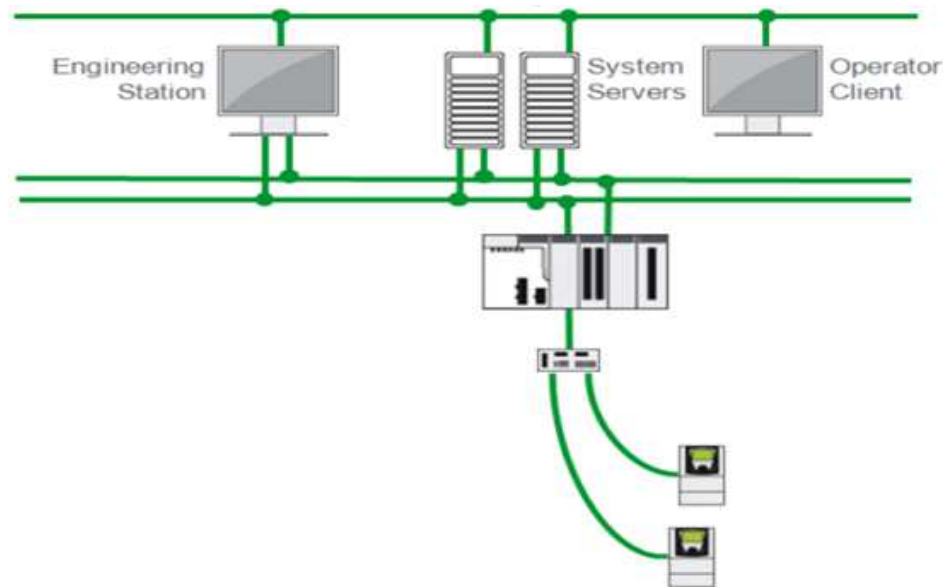
Topology Explorer (TE)

Used to create project architecture like controller and its configuration. Station nodes and its role like Engineering server or Supervision Server or Client. And also used to define respective IPO address and its subnet mask.

Exercise-1

> Work Flow @ PES

1. Create 2VFD objects,1 EMPort Q/M1 in Application Explorer ,and Define object properties like name ,other parameters.
2. Connect all VFD objects to EMPort Q/M using edit links to allocate work memory.
3. Once objects are with valid connections, jump to project Explorer.
4. Create control project Assign facets, Generate , Map Services, Map Hardware & Build.
5. Create Supervision Project, Assign Facets , Genies to page, Generate & Build.
6. Deploy control project to Simulation and Run
7. Take supervision project and restore in VJC along with include file.
8. Restore OFS configuration in OFS.Run VJC and check communication healthiness and operate as required.



Step By Step Procedure

> Project creation

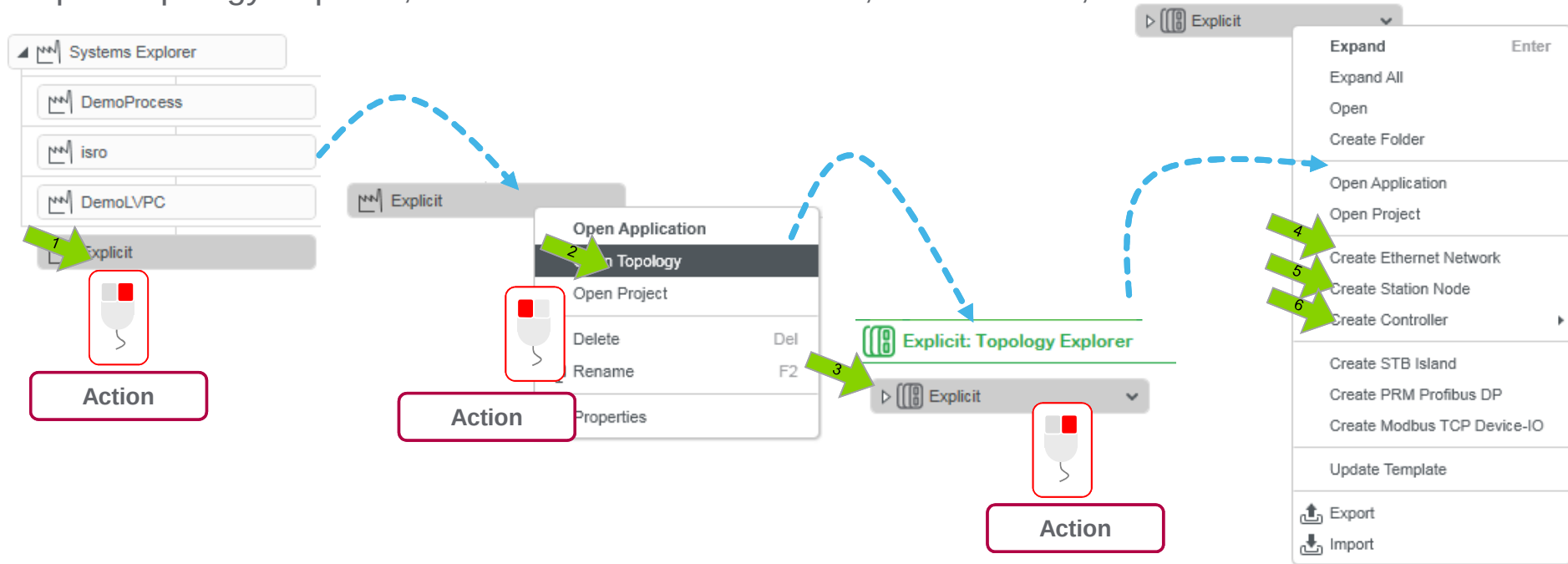
> Open System Explorer, Create System



Step By Step Procedure

> Topology Creation

> Open Topology Explorer, and create Ethernet network, Station node, Controller.



- > Controller configuration not discussed in details, keeping in view that user has prior PES experience. Refer Explicit messaging example for more details.

Step By Step Procedure

> Topology Creation Continuation....

> Result

Explicit: Topology Explorer

Explicit

Instance	Template	Version	State
EATV61HW_1	\$EATV61HW	2.2.2	Valid
EATV61HW_2	\$EATV61HW	2.2.2	Valid
EthernetNetwork_1	\$EthernetNetwork	1.0.1	Valid

StationNode_1

Instance	Template	Version	State
NIC_1	\$NIC	1.0.2	Valid
OFS_1	\$OFS	1.0.1	Valid
UnityPro_1	\$UnityPro	1.0.1	Valid
VJCCitect_1	\$VJCCitect	1.0.1	Valid

Controller_1

Close

Create NIC

Create OFS

Create Unity Pro

Create VJC

Physical Connections

Update Template

Deploy Built Project

Deploy Changes / Undo Online Changes

Re-Deploy Last Project

Start

Note:

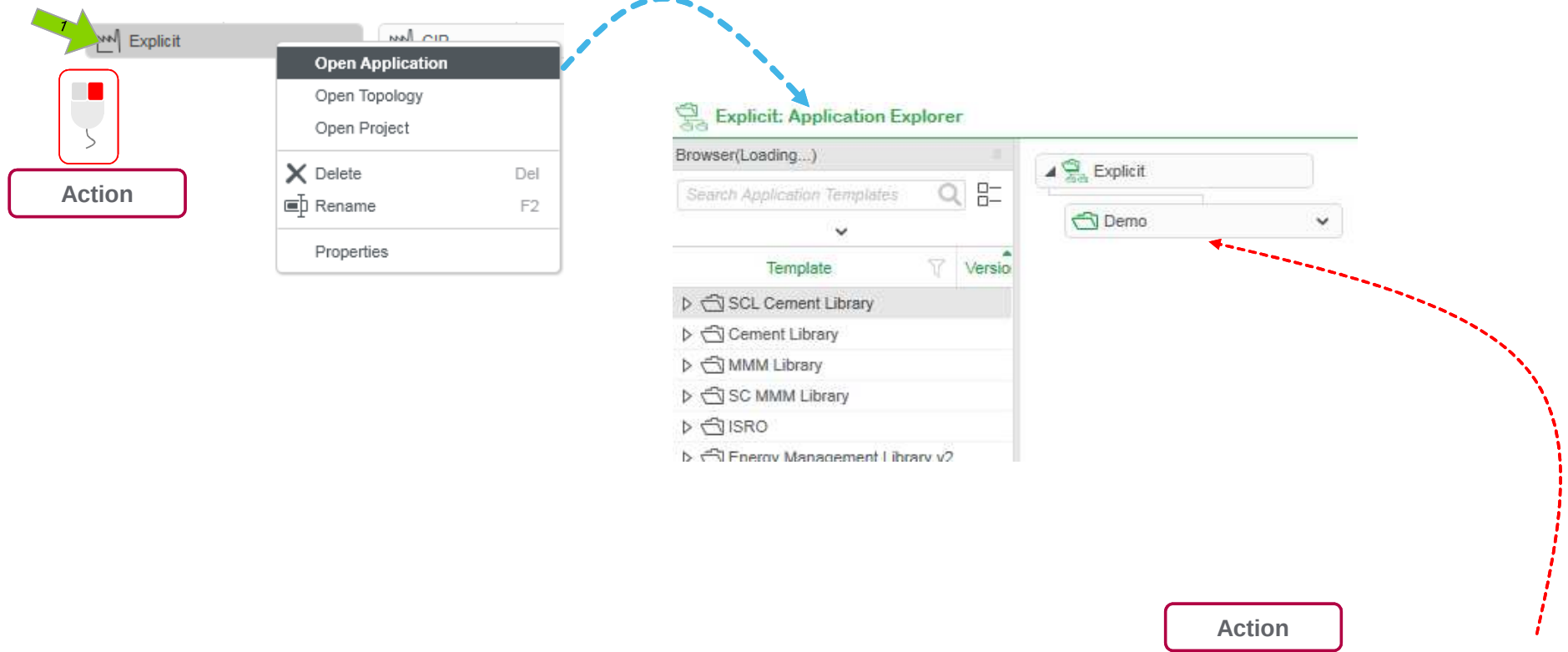
Physical controller configuration is mandatory as we are using going to use hardware mapping with controller.

Make Physical connection with Ethernetnetwork_1

Step By Step Procedure

> Application Creation

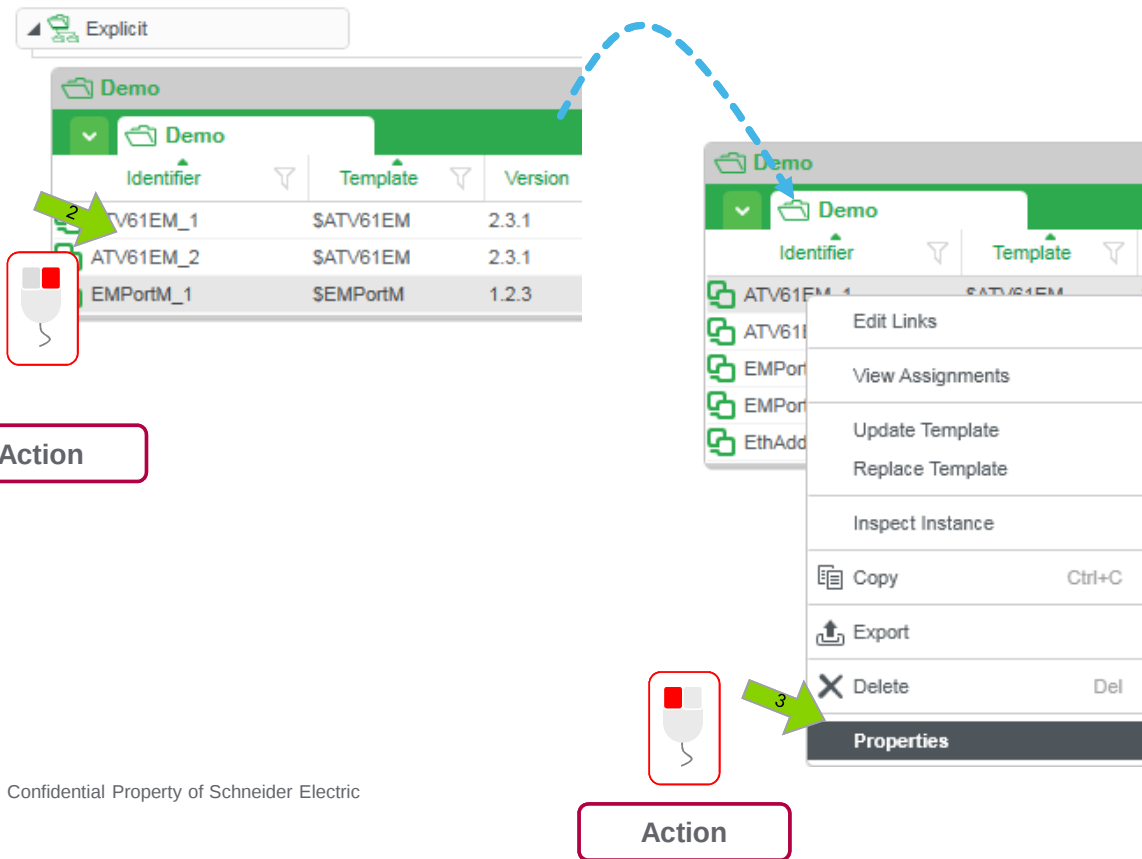
> From System Explorer , jump to Application Explorer



Step By Step Procedure

> Application Creation Continuation..

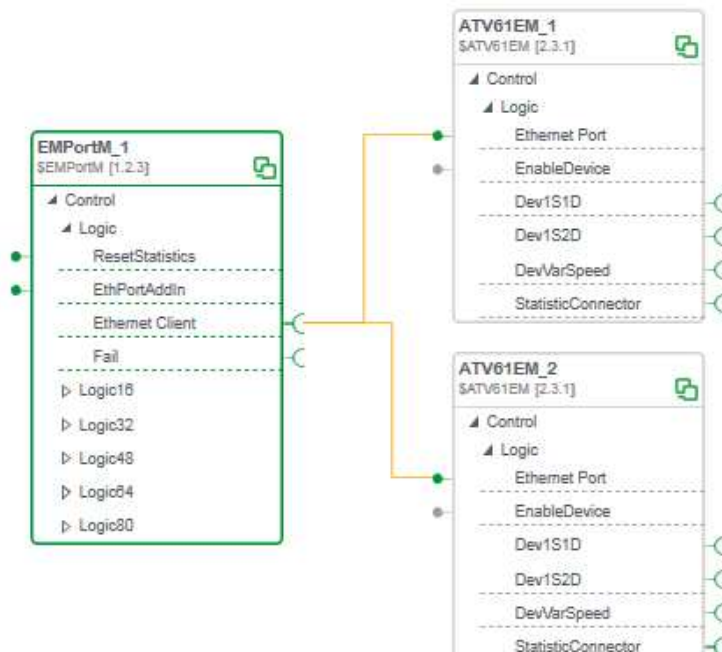
- > Drag and drop all required objects(**ATV61EM_1**, **ATV61EM_2**,**EmPotM_1**) and define their properties like name & other parameters.



Step By Step Procedure

> Application Creation Continuation..

> Connect all VFD objects to **EMPortM_1** (work memory) using edit links.



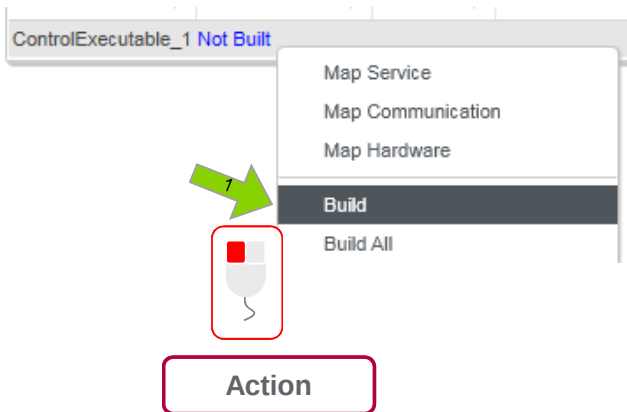
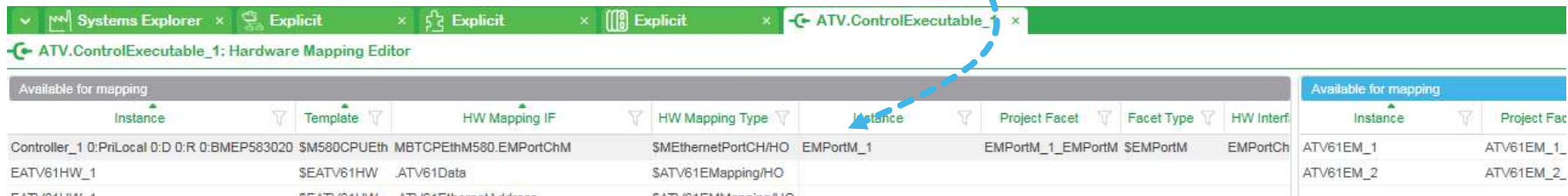
Recollect Case -1,

2 VFD's are connected to Controller using EMPortM and It will allocate work memory to VFD's

Step By Step Procedure

> Project Explorer

> Once done with edit links , Jump to Project Explorer → Create Control Project → Assign Facets → Generate → Create Executable → Map Services → Map Hardware.



Step By Step Procedure

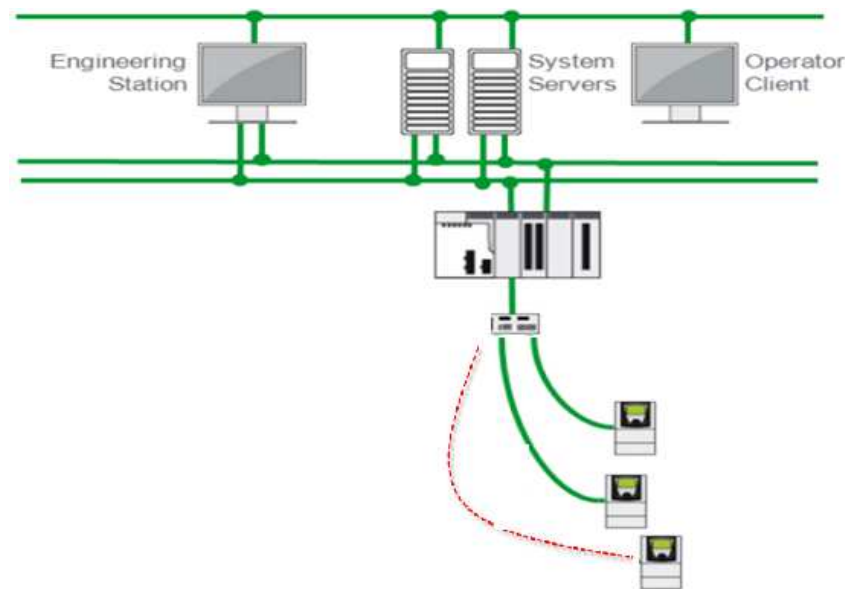
> Project Explorer & Topology

- > Create supervision Project → Assign Facets → Generate → Create Page → Assign Genies → Save → Create Executable → Map Services → Map Communication → Build
- > Download Supervision Project and restore in Vijeo Citect along with OFS and Include files.
- > Deploy Control Project from Topology.
- > Run Vijeo Citect and check communication healthy ness and operate.
- > Supervision Project creation not discussed in details, keeping in view that user has prior PES experience. Refer user manual for more details.

Exercise-2

> Work Flow @ PES

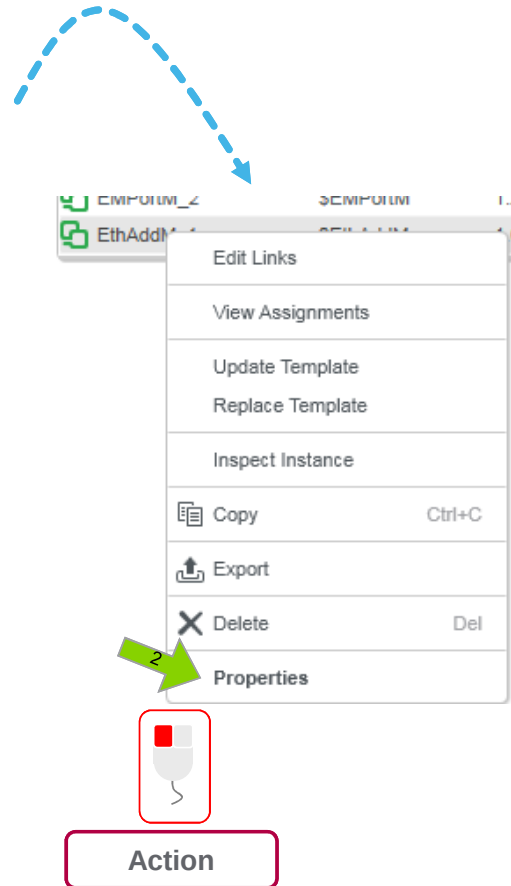
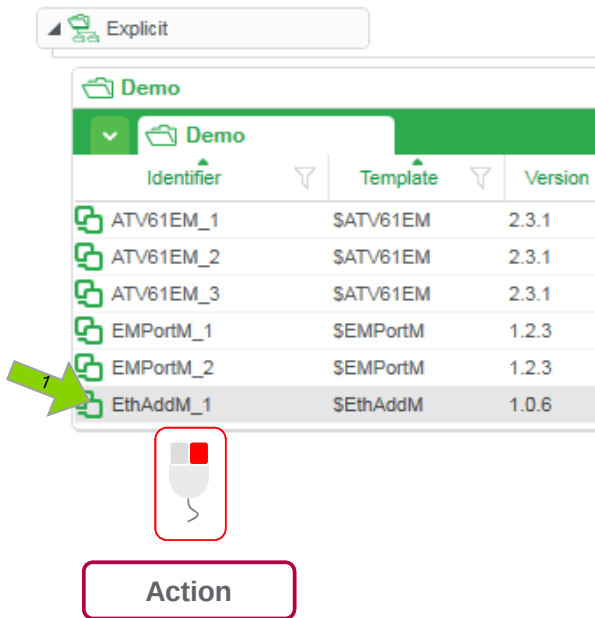
1. Create new VFD objects, EMPort Q/M2 & EthAddM/Q in Application Explorer ,and Define object properties like name ,other parameters.
2. Connect VFD objects to EMPort Q/M using edit links to allocate work memory.
3. Connect Both EMPortQ/M to EthAddM/Q
4. Jump to Project Explorer, Assign Facets to Existing Control Project,Generate,Open Executable, Hardware mapping (EthAddM/Q) , Build.
5. Even though we added new Hardware mapping, controller accepts Build only. No need to perform Build All.Hence complete download not required to controller.
6. And it accepts new device with out any stoppage to Process.



Step By Step Procedure

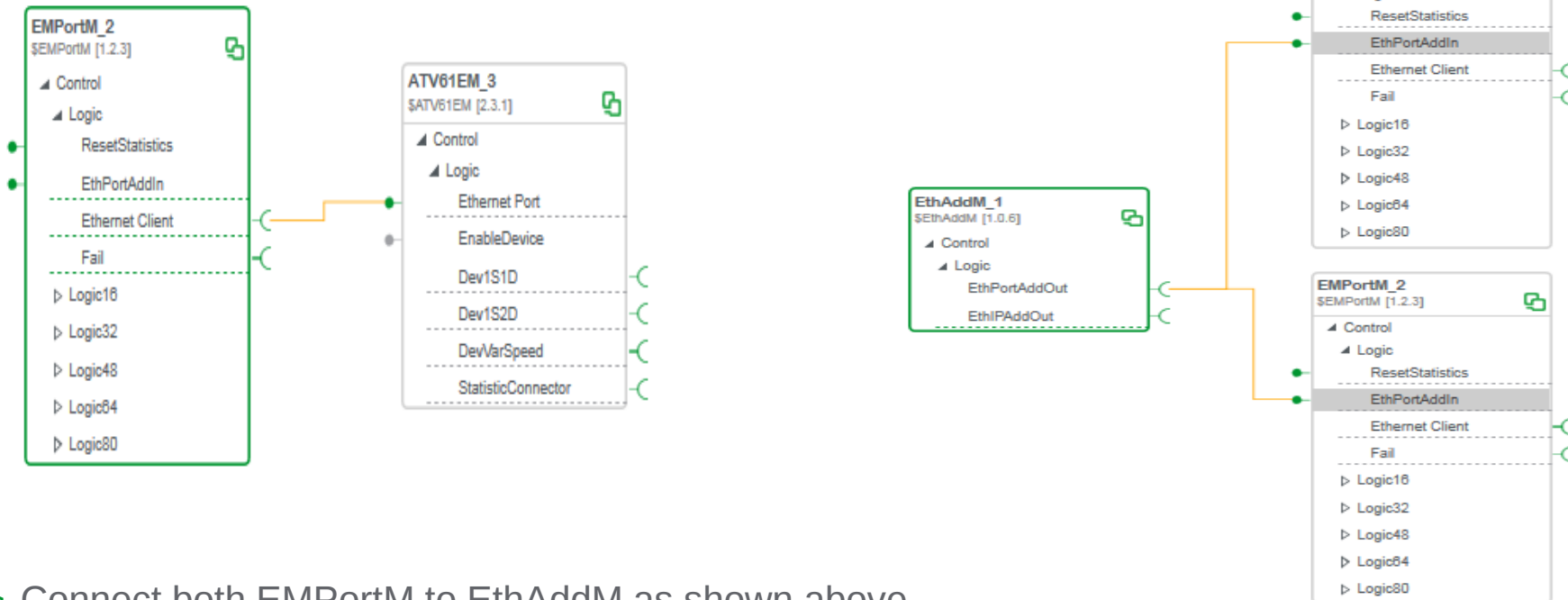
> Application Creation Exercise-2

- > Drag and drop new objects (EMPortM_2, EthAddM_1 & ATV61EM_3) and define their properties like name & other parameters.



Step By Step Procedure

- > Application Creation Exercise-2, Continuation..
- > Create edit links for new VFD , EthAddM.

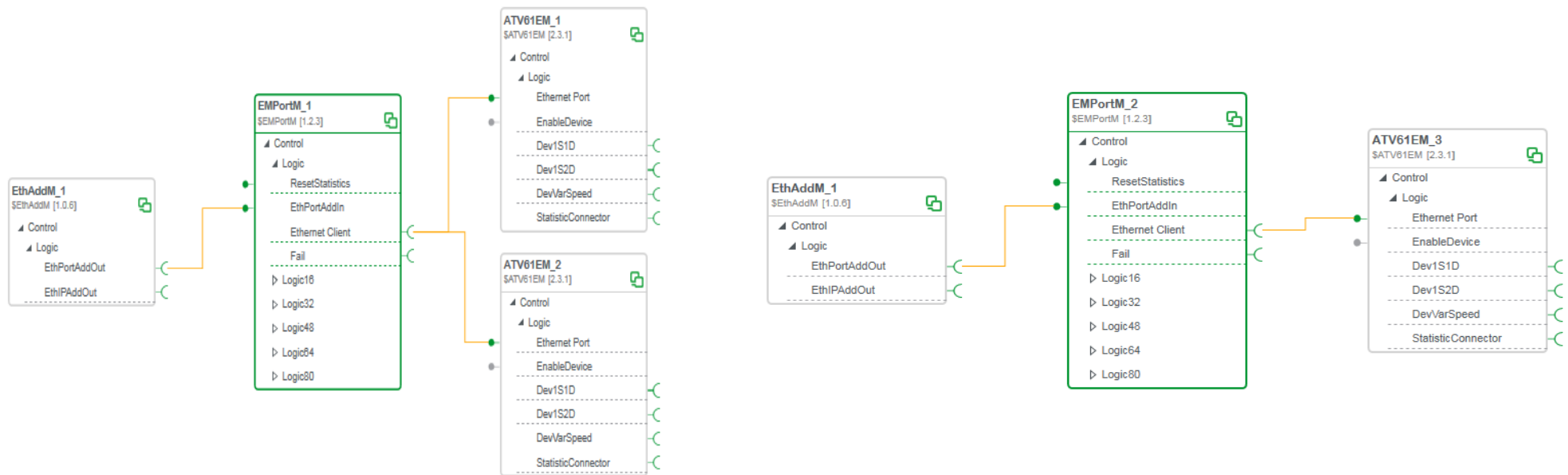


- > Connect both EMPortM to EthAddM as shown above.

Step By Step Procedure

> Application Creation Exercise-2, Continuation..

> Result: Now , Both **EmPortM_1** & **EmPortM_2** are linked with **EthAddM_1**



Step By Step Procedure

> Project Explorer

> Once done with edit links , Jump to Project Explorer → **Open** Control Project → Assign Facets → Generate → **Open** Executable → Map Hardware.

ATV.ControlExecutable_1: Hardware Mapping Editor

Available for mapping					Available for mapping			
Instance	Template	HW Mapping IF	HW Mapping Type		Instance	Project Facet	Facet Type	HW Interface
Controller_1 0: PriLocal 0: D 0: R 0: BMEP583020	\$M580CPUETH	MBTCPEthM580.EMPortChM	\$MEthernetPortCH/HO		ATV61EM_1	ATV61EM_1_ATV	\$ATV61	
EATV61HW_1	\$EATV61HW	.ATV61Data	\$ATV61EMapping/HO		ATV61EM_2	ATV61EM_2_ATV	\$ATV61	
EATV61HW_1	\$EATV61HW	.ATV61EthernetAddress	\$ATV61EMMapping/HO		ATV61EM_3	ATV61EM_3_ATV	\$ATV61	
EATV61HW_1	\$EATV61HW	.GenericData	\$DeviceData/HO		EthAddM_1	EthAddM_1_PA	\$EthAdc	
EATV61HW_1	\$EATV61HW	.FIOSSERVERIDevInputData InputData	\$DataAdd/HO					

- > Notice that, previous H/W mapping withdrawn automatically ,now system allows user to make new hardware mapping. This happened coz we used “**EthAddM**” object to create linking between both **EMPortM**.
- > Also notice that, **EMPortM** not available for hardware mapping now onwards.
- > Drag n drop **EthAddM** and complete hardware mapping (Right to Left as usual)

Step By Step Procedure

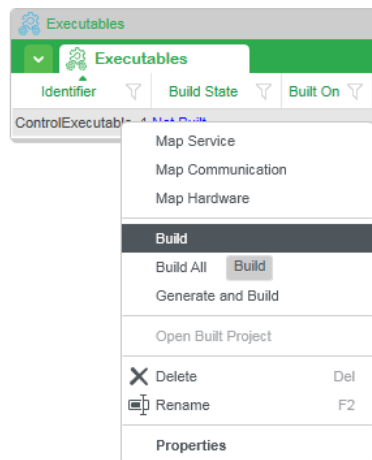
> Project Explorer Continuation..

> Result: New hardware mapping can be seen as below.

ATV.ControlExecutable_1: Hardware Mapping Editor

Available for mapping								
Instance	Template	HW Mapping IF	HW Mapping Type	Instance	Project Facet	Facet Type	HW Interface	
Controller_1 0:PriLocal 0:D 0:R 0:BMEP583020	\$M580CPUeth	MBTCPethM580.EMPortChM	\$MEthernetPortCH/HO	EthAddM_1	EthAddM_1_PA	\$EthAddM	EMPortCHM	
EATV61HW_1	\$EATV61HW	.ATV61Data	\$ATV61EMapping/HO					
EATV61HW 1	\$EATV61HW	.ATV61EthernetAddress	\$ATV61EMMapping/HO					

> **Open** executable and perform Build(Don't use Build All).Build all required complete application download to controller.



Step By Step Procedure

> Project Explorer & Topology

- > **Open** supervision Project → Assign Facets → Generate → **Open** Page → Assign new Genies → Save → **Open** Executable → Map Services → Map Communication → Build
- > Download Supervision Project and restore in Vijeo Citect along with OFS and Include files.
- > **Deploy Changes** to Control Project from Topology.
- > Run Vijeo Citect and check communication healthy ness and operate.

> End of the Document